

NOTES ON HYACINTHUS AND BELLEVALIA (LILIACEAE) IN TURKEY AND IRAN

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ABSTRACT. The following new taxa are described: *Hyacinthus orientalis* subsp. *chionophilus* from SE Turkey, *Bellevalia assadii* from NW Iran, *B. crassa* from N Turkey, *B. modesta* from S Turkey, *B. multicolor* from NW Iran, *B. rixii* from SE Turkey. *Bellevalia* sect. *Oxydonta* [A. Loz. ex] Wendelbo is described and revised; a key to its seven species is provided. A list of species of *Bellevalia* described since the monograph of Feinbrun (1940) is given, and species to be excluded from the genus are commented upon. The new combination *Muscari pseudomuscari* (Boiss. & Buhse) Wendelbo is made with *Bellevalia pseudomuscari* Boiss. & Buhse as the basionym.

A NEW SUBSPECIES OF HYACINTHUS ORIENTALIS

***Hyacinthus orientalis* L. subsp. *chionophilus* Wendelbo, subsp. nov.** Plate 5a.

A subsp. *orientalis* foliis latioribus, 12-15(-36) mm latis, elliptico-linearibus usque ad anguste ovato-lanceolatis, perianthio profundiore diviso, segmentis perianthii tubum circiter aequantibus recedit.

TURKEY. B6 Kayseri: 24 km S of Pinarbaşı, 1800-1900 m, 24 v 1965, Coode & Jones 1422 (holotypus E); 5 km N of Sariz, 1900-2000 m, Coode & Jones 1382. B6 Sivas: Ziyaret geçidi, c. 40 km W of Gürün, Rix et al. 1606. B6 Seyhan: d. Saimbeyli, Burunoluk Da., 2000 m, Tuzlaci 37318. B7 Sivas/Malatya: between Egin (Kemaliye) and Arabkir, Hodschadurdagh, Sintenis 1889:456, 1890:2363. B7 Tunceli: Munzur Da., above Ovacik, 2500 m, T. Baytop ISTE 24234. C6 Maraş: W of Cokak, Ağça Dağ, Sorger 73-15-79; Akher Dag (Ahir Da.) 1600 m, Balls 951.

The new subspecies is easily distinguished from subsp. *orientalis* by the broader leaves, 12-15(-36) mm broad as opposed to 4-5(-11) mm, which are narrowly ovate-lanceolate to elliptic-linear instead of narrowly linear. The perianth is more deeply divided, with segments about as long as the tube, whereas in subsp. *orientalis* the lobes are clearly shorter than the tube. There is hardly any overlap between the two subspecies in these characters. There is also no overlap in geographical distribution although the areas of the two subspecies lie close to each other (see map, fig. 1). Both subspecies seem to prefer limestone and grow on rocky and/or stony slopes. Subsp. *orientalis* is found at altitudes from 400 to 1600 m, whereas subsp. *chionophilus* grows at higher altitudes, from about 1600 to 2500 m, and often flowers near to melting snow. This may mean that there is a difference in moisture requirements between the two subspecies.

The type of *H. orientalis* in the Linnean Herbarium consists of 3 flowering scapes only. Two somewhat different elements are represented but in both the perianth lobes are shorter than the tube, thereby corresponding to subsp. *orientalis*.

Cultivated specimens of numerous different cultivars are very much

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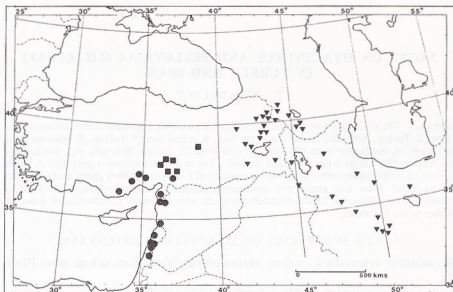


FIG. 1. Accepted spontaneous occurrences of *Hyacinthus orientalis* subsp. *orientalis* ● and subsp. *chionophilus* ■ (localities in Syria, Lebanon and Israel from literature). Total known distribution of *Bellevalia pycnantha* ▼

coarser plants than the wild ones and have broader leaves. It is an open question whether they belong to subsp. *orientalis* or whether subsp. *chionophilus* also could be involved in their origin.

The genus *Hyacinthus* comprises only two other species in addition to *H. orientalis*, *H. litwinowii* E. Czerniak. and *H. transcaspicus* Litw., both from NE Iran and Turkmenistan. For further discussion of relationships between the three species see Bentzer *et al.* (1974) and Persson & Wendelbo (1979c).

TWO NEW SPECIES OF BELLEVALIA SECT. BELLEVALIA FROM TURKEY

***B. crassa* Wendelbo, sp. nov.** Plate 5c.

Species parva foliis binis, obovatis, crassis, inflorescentia subspicata densa, floribus parvis, capsulis crassis distincta, probabaliter inter species sect. *Bellevaliae* subsect. *Romanae* pertinens.

Bulbus 2.2 cm latus, late ovoideus, tunicis cinereo-ferrugineis. *Folia* 2, quam scapus breviora, extimum latissimum 26–33 mm latum, alterum 17 mm latum, obovata, breve acuminata, margine fere laevia vel minute papillosa, ut videtur crassa, glauca purpureo-suffusa. *Scapus* fructiferus 6.5–12.5 cm longus. *Racemus* multiflorus, subspicatus, densus; rhachis c. 1 cm longa. *Pedicelli* fructiferi 0.5–1 mm longi, crassi. *Perianthium* 5.5 mm longum, tubuloso-urceolatum, zygomorphum; lobus externus longissimus 2.3 mm longus, dorso oblique cristatus, bini alii c. 2 mm longi; lobi interiores c. 1.7 mm longi, rotundati, apice subobtusius; color ignotum. *Filamenta* vix 1 mm longa, interiora quam exteriora aliquantum longiora et latiora, basi connata; *antherae* 0.7 mm longae. *Stylus* 1.5 mm longus.

Racemus fructiferus 4–4.5 cm longus, 3–3.5 cm latus, late ellipsoideus, densissimus. *Capsula* crassa, purpureo-suffusa; valvae 12–15 × 14–16 mm, late obcordatae. *Semina* c. 2.5 mm longa, late ovoideo-globosa, nigrescentia.

TURKEY. B7 Erzincan: Refahiye, 4600 ft, steep scree, 24 vi 1934, *Balls* 1498 (holotypus E, iso. K).

This rather peculiar new species looks different from the other small species of the genus in several respects. I am not at all certain about its closest kin, probably it belongs to section *Bellevalia* (sect. *Patens* Feinbr.) subsect. *Romana* Feinbr. with *B. densiflora* Boiss. as a distant relative. The material is in the fruiting stage and the very dense fruiting raceme which is hardly raised above the ground is characteristic. According to the collector the capsules were succulent and tinged purplish. The leaves are short and comparatively broad, apparently thickish and probably tinged purple along the margins. Flower remains are scarce and in a poor condition. No information can be gained about the colours of the small and distinctly zygomorphic perianth, but the remains indicate that it may be pale—perhaps yellowish white.

B. modesta Wendelbo, sp. nov. Plate 5b.

Species foliis latiusculis, longe acuminatis, distincte ciliatis, perianthio parvulo et pedicellis breviusculis distincta. Ab alteri speciebus *B.* sect. *Bellevaliae* subsect. *Romanae* perianthio ad medium diviso antheris flavis differt.

Bulbus c. 2 cm diam., subglobosus. *Folia* 3, scapo manifeste longiora, usque ad 2 cm lata, longe acuminata, glauca, margine undulata et distincte ciliata. *Scapus* 1(–2), a bulbo usque ad rhachidis apicem 7–20(–30) cm longus. *Racemus* cylindricus, multiflorus, laxiusculus. *Bractaeae* distinctae, usque ad 1.5 mm longae, bifidae. *Pedicelli* ante anthesin erecti, demum recurvi, 4–6 mm longi, fructiferi vix elongati. *Perianthium* nutans, 5.5–8 mm longum, campanulatum; lobi subaequales tubum aequantes, elliptici vel elliptico-ovati, obtusi, exteriores plus minusve obliqui quam interiores aliquantum longiores et latiores; gemma purpurea, perianthium crenea basin versus sordide purpureum, in sicco pallide brunneum lobis pallidioribus. *Filamenta* c. 2 mm longa, anguste triangularia, complanata; *antherae* c. 1.8 mm longae, flavae, pollen luteum. *Ovarium* ovoideum in stylum angustatum, ovulis in quoque loculo duobus. *Stylus* 2.5–3 mm longus, crassiusculus. *Capsula* immatura.

TURKEY. C5 Içel: above Tarsus, above Yenice, 800 ft, clay, waste ground, fields, 7 iv 1934, *Balls* 695 (holotypus E, iso. K); Mersin, Kanlidivane, macchie, 160 m, 16 iii 1972, *T. Uslu* 1276 (E); Cakairli Köyü, Tarsus Çukurova, 9 iv 1967, *Deaver* T 103 (E).

B. modesta belongs to section *Bellevalia* (sect. *Patens* Feinbr.) subsect. *Romana* Feinbr., but differs from the other species of this subsection in having the perianth divided to the middle and in the yellow anthers. The rather broad, long-acuminate, distinctly ciliate leaves, the comparatively small perianth, and the rather short pedicels are characteristic of the new species. The three known localities are situated within a rather small area in the province of Içel in S Turkey.

REVISION OF BELLEVALIA SECT. OXYODONTA

Bellevalia sect. *Oxyodonta* [A. Loz. ex] Wendelbo, sect. nov.

Syn.: *B.* sect. *Oxyodonta* A. Loz. in Fl. URSS 4:404 (1935), descr. ross.

Folia 2–3, raro usque ad 6. Racemus sub anthesi densus, ovoideo-ellipsoideus, racemus fructiferus saepe cylindricus. Pedicelli quam perianthium aequilongi vel saepissime manifeste breviores. Perianthium nutans vel raro patens, \pm urceolatum, lobis incurvis. Capsulae valvae late obovatae vel suborbiculares apice emarginatae.

Typus sectionis: *B. pycnantha* (C. Koch) A. Loz.

In her monograph of the genus *Bellevalia* Feinbrun (1940) omitted the species *B. forniculata*, *B. paradoxa*, *B. pycnantha* and *B. tristis*. The first three were thought to belong to *Muscari* and the last to *Hyacinthella*. In the monograph of *Hyacinthella* (Feinbrun, 1961) *B. tristis* was referred to *Bellevalia* again. As will appear from the synonymy given below, these species have been variously placed due to uncertainty about their real relationship. However, they all have the characteristic triangular, flattened filaments attached at the base of the perianth-lobes, and the smooth seed testa of *Bellevalia* (see Persson & Wendelbo 1979a, 1979b). Together with three new species, *B. assadii*, *B. multicolor* and *B. rixii*, they share a combination of certain characters. Thus the perianth is urceolate with incurved lobes and there are very distinct oblique ridges on the backs of at least one or two of the outer lobes. The inflorescence is short and dense and more or less ovate-elliptic in outline in the flowering stage. During fruiting the raceme elongates and becomes cylindrical.

The flowering pedicels are as long as the perianth in *B. pycnantha*, and clearly shorter to much shorter in the other species. The number of leaves is 2–3 in five of the species, *B. assadii* has 3–4 leaves, whereas *B. tristis* has 4–6 leaves. *B. forniculata*, *B. pycnantha* and *B. paradoxa* seem to be more closely related *inter se* than to the other species. These three species grow at higher levels and under humid conditions. Their leaves seem to be green and more mesophytic than the glaucous ones of the other species. They also have yellow anthers whereas these of the other species are violet.

Geographically the section *Oxyodonta* is well defined. It is restricted to NE Iraq, E Turkey, the Transcaucasus of the USSR, and W Iran. This is more or less the Armeno-Kurdish area of Hedge and Wendelbo (1978) with extensions into the Zagros and Elburz mountains of Iran. In the sense of Takhtajan (1978) the area covers the three subprovinces of the Armeno-Iranian province: the Armenian, the Atropatanian and the Kurdo-Zagrosian. *B. forniculata* and *B. paradoxa* belong to the Armenian subprovince, *B. rixii*, *B. assadii* and *B. multicolor* to the Atropatanian, and *B. tristis* to the Kurdo-Zagrosian, whereas the area of *B. pycnantha* covers much of the total area of the three subprovinces.

Key to the species of *Bellevalia* sect. *Oxyodonta*

- | | | |
|----|---|--------------------------|
| 1. | Perianth blue with paler stripes when dry | 1. <i>B. forniculata</i> |
| + | Perianth brownish to dark brownish violet or violet-blue when dry | 2 |
| 2. | Anthers yellow | 3 |
| + | Anthers violet | 4 |

3. Pedicels 2-3 mm, much shorter than the perianth. Leaves oblanceolate-linear, acuminate 2. *B. paradoxa*
 + Pedicels about as long as the perianth. Leaves elliptic-linear 3. *B. pycnantha*
4. Perianth lobes about as long as tube. Leaves 4-6 7. *B. tristis*
 + Perianth lobes about half as long as tube. Leaves 2-3(-4) 5
5. Pedicels patent. Perianth patent, broadly urceolate; lobes very unequal 6. *B. rixii*
 + Pedicels recurved. Perianth \pm nodding, tubular-urceolate; lobes subequal 6
6. Leaves 3(-4). Perianth dark dull brown-violet when dry 4. *B. assadii*
 + Leaves 2(-3). Perianth rather pale brownish when dry 5. *B. multicolor*

1. *B. forniculata* (Fomin) Deloney in Monit. Jard. Bot. Tiflis n.s. 1:44 (1922-23).

Syn.: *Muscari forniculatum* Fomin in Monit. Jard. Bot. Tiflis 9:12 (1908).

Typus: Described from Anatolia, Oltu in the province of Kars.

Distr.: NE Turkey. (Fig. 2).

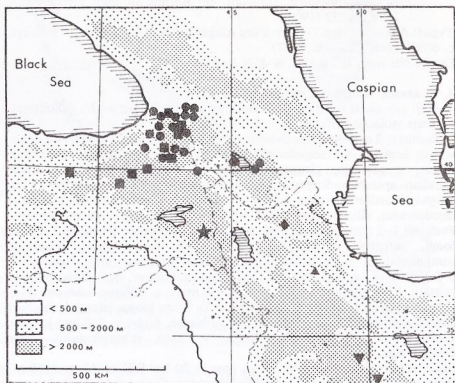


FIG. 2. Total known distribution of *Bellevalia assadii* ♦, *B. forniculata* ■, *B. multicolor* ▲, *B. paradoxa* ●, *B. rixii* ★, *B. tristis* ▼.

No real type specimen could be found either in the Leningrad or Tiflis herbarium. Fomin's new species were often described from material cultivated in the Tiflis Botanical Garden, and specimens were not always pressed.

2. *B. paradoxa* (Fisch. & Mey.) Boiss., Fl. Or. 5:308 (1882) excl. descr. Plate 6c.

Syn.: *Hyacinthus paradoxus* Fisch. & Mey. in Ind. Sem. Horti Petrop. 1:30 (1835).

Muscari paradoxum (Fisch. & Mey.) C. Koch in Linnaea 22:253 (1849).

Muscari acutifolium Boiss., Fl. Or. 5:300 (1882).

Bellevalia acutifolia (Boiss.) Deloney in Monit. Jard. Bot. Tiflis n.s. 1:44 (1922-23).

Typus: Hab. in montibus provinciae Gurii versus pontum Euxinum.

Distr.: USSR: W Transcaucasus; NE Turkey. (Fig. 2.).

The combination *B. paradoxa* must be attributed to Boissier (loc. cit.) although apart from the basionym the synonyms he lists and the material he cites do not belong to this species in the original sense.

3. *B. pycnantha* (C. Koch) A. Loz. in Fl. URSS 4:404 (1935).

Syn.: *Muscari pycnanthum* C. Koch in Linnaea 22:255 (1849).

Bellevalia elwendica [Hausskn. ex] Bornm. in Bull. Herb. Boiss. 2 sér., 8:732 (1908).

Typus: Auf den ersten Terrassen des Alagäs in Gaue Schuragel auf Trachyt, c. 6000' hoch C. Koch. (LE?).

Distr.: NE Iraq, E Turkey, W & N Iran. (Fig. 1).

4. *B. assadii* Wendelbo, sp. nov. Plate 6d, e.

A *B. paradoxa* foliis 3(-4) patentibus tortis lobis perianthii subobtusis, antheris violaceis differt.

Bulbus c. 2 cm latus, late ovoideus, tunicis ferrugineis. *Folia* 3(-4), quam scapus breviora vel aequilonga, extimum latissimum usque ad 17 mm latum, \pm patentia, glauca, aliquantum torta, margine laevia, apice cucullato-apiculata. *Scapus* a bulbo usque ad rhachidis apicem 12-13 cm longus, fructiferus usque ad 23 cm elongatus. *Racemus* 10-25-florus, densiusculus, ellipsoideus, c. 2.5×2 cm; rhachis atro-violaceo-caerulea. *Pedicelli* 1-2 mm longi, recurvi, atro-violaceo-caerulei; fructiferi 5-8 mm longi, patentes. *Perianthium* nutans, 7.5 mm longum, tubuloso-campanulatum, \pm fusco-violaceum, gemmae violaceae; lobi exteriores c. 2.5 mm longi, c. 1.8 mm lati, late ovati, subobtusii, bini dorso oblique cristati; lobi interiores c. $2.2 \times$ c. 2 mm, \pm oblique late obovato-suborbiculares, mucronati. *Filamenta* c. 0.8 mm longa, triangularia, basi connata; *antherae* c. 1.6 mm longae, violaceae. *Stylus* c. 2.2 mm longus. *Capsulae* valvae 12-13 mm longae et latae, suborbiculares, apice emarginatae.

IRAN. Azarbaijan: Tabriz to Ahar, pass c. 20 km SW of Ahar, 1700 m, stony east-facing slope, 25 iv 1976, *Wendelbo & Assadi* 19421 (holotypus GB, iso. TARI); ibid., 31 v 1978, *Wendelbo & Assadi* 27906 (GB, TARI). Fig. 2.

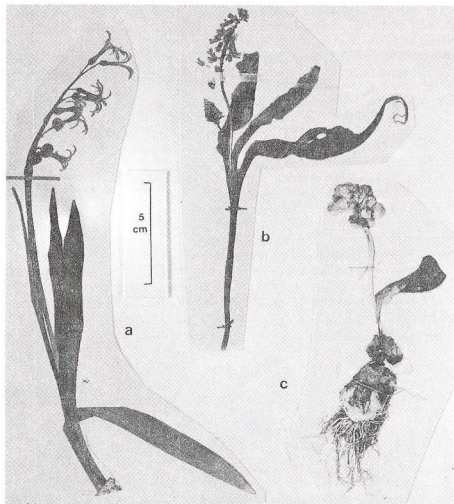


PLATE 5. a, *Hyacinthus orientalis* L. subsp. *chionophilus* Wendelbo (Coode & Jones 1422, holo. E); b, *Bellevalia modesta* Wendelbo (Balls 695, holo. E); c, *B. crassa* Wendelbo (Balls 1498, holo. E).

This new species is undoubtedly related to *B. paradoxa*, but differs in having three, or more rarely four, leaves which are patent, twisted and differently shaped. It also differs from *B. paradoxa* in perianth lobes which are not so acute, and in the anthers being violet not yellowish. For comparison of the species see the discussion under *B. multicolor*.

B. assadii is named in honour of my travelling companion and friend Mr Mostafa Assadi of the Botanical Institute of Iran. Mr Assadi was the first to find this new species on one of our collecting trips to Azarbaijan.

5. *B. multicolor* Wendelbo, sp. nov. Plate 6b.

Species perianthio versicolori flavescenti-brunneo lobis flavo-marginatis, intus virescente-flavescenti insignis, a *B. tristi* Bornm. et *B. assadii* Wendelbo foliis duobus falcato-recurvis distinguitur.



PLATE 6. a, *Bellevalia rixii* Wendelbo (Rix 1967, holo. K); b, *B. multicolor* Wendelbo (Wendelbo & Assadi 19179, holo. GB); c, *B. paradoxa* (Fisch. & Mey.) Boiss. (Watson in A., C. & W. 3167, E); d & e, *B. assadii* Wendelbo—d, fruiting (Wendelbo & Assadi 27906, GB); e, flowering (Wendelbo & Assadi 19421, holo. GB).

Bulbus c. 1.5 cm latus, ovoideus, tunicis griseis in collum breve protractis. *Folia* 2, rarissime 3, quam scapus breviora, 6–8 mm lata, ad solum superficiem \pm falcato-recurva, canaliculata, glauca, margine laevia, apice cucullata. *Scapus* a bulbo usque ad rhachidis apicem 20–26 cm longus, usque ad dimidium longitudinis sole tectus, supra solum superficiem quoque purpurascens. *Racemus* florendi tempore c. 3 cm longus, 2 cm latus, sublaxus, 14–25-florus, rhachidi violacea. *Bractee* parvae, bilobae, inferiores interdum basi gibbosae. *Pedicelli* 2–4 mm longi, subrecurvi, violacei. *Perianthium* nutans, c. 7 mm longum, tubuloso-urceolatum, aliquantum zygomorphum; lobi subaequales, c. 2.5 mm longi, late ovati, subacuti, mucronulati, exteriores dorso oblique cristati, bini ex interioribus protuberantia obliqua provisi; gemma tubo caeruleo violaceo-tincto, lobis incurvis brunnescenti-purpureis; perianthium versicolor, sub anthesi pallide flavescenti-brunneum lobis flavo-marginatis, intus virescenti-flavescens, in statu exsiccato brunnescens nervis caerulescenti-violaceis. *Filamenta* vix 1.5 mm longa, triangularia, base connata; *antherae* c. 1.5 mm longae, atro-violaceae, polline flavescente. *Ovarium* loculis biovulatis. *Stylus* c. 1.5 mm longus, crassus. *Fructus* seminaque ignoti. IRAN. East Azarbaijan: about 50 km after Zanzan on road to Tabriz, 1350 m, 20 iv 1976, *Wendelbo & Assadi* 19179 (holotypus GB, iso. TARI). Fig. 2.

B. multicolor differs from all related species in the colours of the perianth. It differs from *B. tristis* Bornm. and from *B. assadii* by nearly always having only two leaves which are falcately recurved. *B. paradoxa* (Fisch. & Mey). Boiss. has very dissimilar leaves which are linear-ob lanceolate, attenuate at the apex and apparently erect. *B. rixii* has very differently shaped perianth lobes and a larger, more broadly urceolate, perianth.

B. multicolor differs ecologically from related species in growing on soil slopes of small hills in what is otherwise rather flat country. The soil on these hills is reddish and seems to be rather sterile as judged from the scattered vegetation which includes several members of the Chenopodiaceae.

6. *B. rixii* Wendelbo, sp. nov. Plate 6a.

A *B. paradoxa* foliis canaliculatis recurvatis, perianthio patenti, breviter pedicellato, majusculo, magis urceolato recedit.

Folia 2, quam scapus longiora, extimum latissimum 7–10 mm latum, canaliculata, falcato-recurva, margine laevia. *Scapus* a bulbo usque ad rhachidis apicem 7.5–11 cm longus. *Racemus* 10–15-florus, late ovoideo-ellipsoideus, usque ad 2.5×1.5 cm, densus. *Bractee* usque ad 1.5 mm longae, spathulatae. *Pedicelli* 0.5–1.5 mm longi, patentes, fructiferi vix elongati ad c. 2 mm longi. *Perianthium* patens, c. 8 mm longum, late urceolatum, lobi incurvati, ad apicem indistincte obtuse mucronulati, exteriores 2.3×2.5 mm, late ovato-triangularis, subacuti, bini exterioribus dorso oblique cristati, lobi interiores vix 2×2.7 mm, oblique transverse late semi-elliptici; perianthii color in sicco fusco-violaceus. *Filamenta* 1.2 mm longa, late triangularia; *antherae* c. 1.3 mm longae, violaceae. *Stylus* 2.3 mm longus. *Capsulae* valvae usque ad 12 mm longae et latae, late ovato-suborbiculares, apice emarginatae. *Semina* c. 2.5 mm diametro, subglobosa.

TURKEY. B9 Van: Choh (Çuh) pass between Hoşap and Başkale, 3000 m, v 1972, *Rix* 1967 (holotypus K); pass between Hoşap and Başkale, 2800 m, *Rix* 2305 (K); c. 105 km S of Van, S slope of Güzeldere Geçidi, 2800 m, *J. Trelawny & J. McPhail* 2048 (E). Fig. 2.

The new species has a certain similarity in habit to *B. paradoxa*, especially in the dark- and dense-flowered raceme. It differs clearly from this species in the canaliculate, recurved leaves and in the patent, more shortly pedicelled, slightly larger and more urceolate perianth. *B. rixii* also differs from *B. paradoxa* in the violet, not yellowish, anthers and the very unequal perianth lobes of which the inner are rounded, not acute, and much broader than long. For comparison with other related species see the remarks under *B. multicolor*.

B. rixii is named in honour of Dr Martyn Rix of Ashford, Kent, England, a specialist on the genus *Fritillaria*.

7. *B. tristis* Bornm. in Beih. Bot. Centralbl. 24, Abt. 2:108 (1908).

Syn.: *Hyacinthus tristis* Bornm., loc. cit., nom. alt.

Hyacinthella tristis (Bornm.) Feinbr. in Palest. J. Bot. Jer. ser. 1:405 (1940).

Typus: Persia: in mt. Raswend, *Strauss* s.n. (B).

Distr.: Western part of C Iran. (Fig. 2).

Bornmüller (loc. cit.) placed *B. tristis* in the sect. *Hyacinthella*. This probably misled Feinbrun (1940) who with some doubt referred this species to the genus *Hyacinthella*. However, in her monograph of the latter genus (Feinbrun, 1961, p. 327) she stated that it was a true *Bellevaia*. The species is confined to a very restricted area in Iran.

SPECIES ADDED TO BELLEVALIA (since Feinbrun's monograph, 1940)

B. assadii Wendelbo, see above. NW Iran.

B. brevipedicellata Turrill in Kew Bull. 1940: 264. Crete.

B. crassa Wendelbo, see above. N Turkey.

B. cyanopoda Wendelbo in Nytt Mag. Bot. 14:96 (1967). C Iran.

B. douinii Pabot & Mouterde, Nouv. Fl. Liban & Syrie 1:249 (1966). Syria.

B. feinbrunae Freitag & Wendelbo in Isr. J. Bot. 19:221 (1970). Afghanistan.

B. forniculata (Fomin) Deloney, see above. NE Turkey.

B. hermonis Mouterde, Nouv. Fl. Liban & Syrie 1:250 (1966). Syria, Lebanon.

B. hyacinthoides (Bertol.) K. Perss. & Wendelbo in Bot. Notiser 132:65 (1979). Greece.

B. inconspicua Vved. in Not. Syst. Herb. Inst. Bot. Ac. Sci. URRS 9:245 (1946). USSR: Tadjikistan.

B. koeiei Rech. f. in Dansk Bot. Arch. 15, 4:55 (1954–55). SW Iran.

B. modesta Wendelbo, see above. S Turkey.

B. multicolor Wendelbo, see above. NW Iran.

B. paradoxa (Fisch. & Mey.) Boiss., see above. USSR: W Transcaucasus NE Turkey.

B. parva Wendelbo in Kew Bull. 28:32 (1973). N Iraq.

- B. pycnantha* (C. Koch) A. Loz., see above. E Turkey, W, NW & N Iran; Transcaucasus: Armenia and Georgia.
B. rixii Wendelbo, see above. SE Turkey.
B. salah-eidii Täckholm & Boulos in Publ. Cairo Univ. Herb. 5:80 (1974). Egypt.
B. schirazana Parsa in Kew Bull. 1949:34. S Iran.
B. tabriziana Turrill in Kew Bull. 1929:234; K. Persson & Wendelbo in Bot. Notiser 132:197 (1979). NW Iran.

SPECIES EXCLUDED FROM BELLEVALIA

Bellevalia validicarpa Ponert in Ukr. Bot. Zhurn. 28:774, fig. 1 (1971).

No material of this species described from the Elburz Mts of N Iran has been available for study. It is, however, quite clear from the description and the rather poor illustration that this plant does not belong to *Bellevalia*. The bracts are described as lanceolate-linear and up to 1.5 cm long, the capsule valves as rounded on the back, and the seeds as 'prominente pericrispe reticulata'. All species of *Bellevalia* have small to minute bracts, concave capsule valves, and seeds with a completely smooth surface. There can be little doubt that *Bellevalia validicarpa* is based on a specimen belonging to some species of the genus *Ornithogalum*.

Bellevalia pseudomuscari Boiss. & Buhse, Diagn. 2, 4:110 (1859) =

Muscari pseudomuscari (Boiss. & Buhse) Wendelbo, **comb. nov.**

Syn.: *Muscari chalusicum* Stuart in Lily Year Book 1967:125.

Typus: Iran. Gorgan: prope Ketul (Kutul) cl. *Buhse* (G).

IRAN. Mazandaran: N side of Chalus pass, 2000 m, 16 iii 1962, *Furse* 1055 (type of *Muscari chalusicum*, holo. K, iso. W); Chalus valley, 15–17 km from Chalus, 300 m, *Wendelbo* & *Masoumi* 19162. Gorgan: Shahpasand to Shahrud, Iranshahr 8007-E.

This species belongs to *Muscari* subgen. *Pseudomuscari* Stuart with *M. pallens* Fisch. as type species (Stuart, 4 vi 1970). Garbari & Greuter (29 vi 1970) treat this group as a genus, *Pseudomuscari* Garbari & Greuter, but they have *P. azureum* (Fenzl) Garbari & Greuter as type species. The circumscription of the group seems to be the same in both cases.

Bellevalia dichroa [Hausskn. ex] Bornm. in Beih. Bot. Centralbl. 24, Abt. 2:107 (1908); Feinbrun in Palest. J. Bot. Jer. ser. 1:353 (1940) = *Alrawia bellii* (Baker) K. Perss. & Wendelbo in Bot. Notiser 132:202 (1979).

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